Jafari et al. Int Electron J Med. 2018; 7(2):35-40
DOI:10.31661/iejm891

Original Article

Physical Disability and Its Effective Factors in the Elderly of Khalkhal City

Milad Jafari[1], Aliakbar Shekarchi[2], Zahra Khalili[3], Khadijeh Nasiri[4]*, Parvin Dadashi[1]

1 Student Research Committee, Department of Nursing, Faculty of medical Sciences, Khalkhal University of Medical Sciences, Khalkhal, Iran. ORCID: 0000-0002-2585-9677
[2] Department of Pathology, Faculty of Medicine, Ardabil University of Medical Sciences, Ardabil, Iran.
[3] Department of Nursing, Faculty of Nursing and Midwifery, Ardabil University of Medical Sciences, Ardabil, Iran.
[4] Department of Nursing, Faculty of Medical Sciences, Khalkhal University of Medical Sciences, Khalkhal, Iran.

Received: 2018/9/2 Accepted: 2018/11/6 Published: 2018/12/15

Abstract

Background: Aging is considered as one of the crucial stages of human development; it is not only the end of life but also is a normal and natural process. The disability is among the consequences of the elderly, which affects the whole process of aging. The present study aimed to determine the rate of physical disability and its effective factors in the elderly in Khalkhal city in 2017. **Materials and Methods:** This descriptive cross-sectional study was performed on 400 elderly people who referred to Khalkhal health centers, using convenience random sampling. The data collection tool was a short version of the disability scale of the Stanford Health Assessment Questionnaire (HAQ 8-item DI). **Result:** Our study showed that the total disability score in the elderly was 2.56 ± 5.24 (2.69 ± 5.40 in men and 2.41 ± 5.06 in women). Also, there was a significant relationship between disability score and age, illness history, the frequency of hospitalization, the perception of health, number of children, current occupation, and lifestyle (P-value<0.05). **Conclusion:** The overall findings of this study indicated the high rate of disability among the elderly in Khalkhal city. Further, men are more likely than women to experience a disability. Therefore, the use of preventive and contributing measures for national aging health programs can improve the quality of life of the elderly.

Keywords: Elderly, Physical Disability, Effective Factors

Introduction

Aging is considered as one of the crucial stages of human development that is not only the end of life but also a natural process of life. The increasing population of older adults is so remarkable that it has been described as a quiet revolution (2). The age structure of the world's population is evolving, so that the world's elderly population accounted for 10% of the total population in 2000, while the population is projected to reach 16.6% by 2030 (3). Sixty-five percent of older people live in developing countries (4). According to the results of the National Population and Housing Census in 2017, the elderly constitutes 9.2% of the population of Iran (5), and this figure is expected to reach 24.9% by 2051 (6). Aging is often associated with a progressive decline in functional performance and various disabilities such as mental, cognitive, physical, social, and economic, so that average level of physical and psychological performance tends to decline about 15% per year after middle age (7). Disability is among the consequences of aging and is defined as a limitation in the ability to perform social roles and activities related to a job or continuation of independent life (8, 9). Considering the rapid growth of the elderly population in Iran and the need to pay particular attention to their health requirements, higher rates of major health problems among the older adults, paucity of similar studies focusing on the elderly disability in Ardebil province, and high position and respect toward the elderly within the cultural structure of Iranian society and families, the results of the current study can help us to take some

*Corresponding Author:
Khadijeh Nasiri, Department of Nursing, Faculty of Medical Sciences, Khalkhal University of Medical Sciences, Khalkhal, Iran.
Email Address: Khadije.nasiri@yahoo.com
Telephone Number: +989118109081
ORCID: 0000-0001-6404-5257

steps to improve the health of the elderly community and reduce the disability problems among older people by determining the disability level and its effective factors among them in Khalkhal city. Also, it could improve strategic and organized programs for managing future challenges of older people in the planning sector of the Ministry of Health.

Materials and Methods

This descriptive cross-sectional study was performed on 400 elderly people who referred to Khalkhal health centers 1, 2 and 3 in Khalkhal city, Iran in 2017. Multistage sampling was used in this research. During the first stage, sampling was carried out using a stratified sampling according to the number of elderly people covered by each center and next, convenience random sampling for the selection of the research participants. Sampling was performed after obtaining permission from the authorities of the health centers and explaining the goals of the research. The written informed consent was obtained from the elderly, and then, the questionnaire was completed during the interviewing process by the researcher. The inclusion criteria were the age of 60 years or above, the resident at Khalkhal city, ability to answer questions, and absence of Alzheimer disease. According to Adib-Hajbagheri et al. study (10) and considering a drop-out rate of 10% total sample, the sample size was determined to 400. Data were collected using a two-section questionnaire. The first section consisted of personal and social information including illness, income level, lifestyle, addiction, age, gender, educational level, assistance with everyday activities, job backgrounds, current occupation, marital status, place of residence, disability rate, hospitalization history, and regular physical activity. The second section included a short version of the disability scale in the Stanford Health Assessment Questionnaire (HAQ 8-item DI) among the elderly. The questionnaire is composed of 8 items and is scored from 0 to 3 depending on the individual's ability; no difficulty in performing an activity=0, some difficulty=1, much difficulty=2, and unable to do or get the help of some tools or other people=3. Also, a higher score indicates worse disability. Since the respondent may not answer some question, the average scores of each item is taken for measuring the disability, and the disability index is expressed between scores of 0–3 units. Scores of 0 to 1 are generally considered to represent mild to moderate, 1 to 2 indicate moderates to severe, and 2 to 3 represent severe to very severe disability. It should be noted that if more than two items are eliminated in the questionnaire, each item has had more than one answer, the response indicating worse disability should be chosen. The questionnaire items included measuring the disability level in dressing, getting in and out of bed, lifting a full cup or glass to mouth, walking outdoors on flat ground, washing and drying entire body, turning faucets on and off and getting in and out of a car. The validity of the tool was confirmed, and its reliability was determined through Cronbach's alpha (0.98). Data were analyzed via SPSS software version 13 using descriptive mean, the standard deviation, frequency, and percentage. Analysis of variance (ANOVA) , Pearson coefficient, and Kruskal–Wallis tests were utilized to determine the relationship between research variables. The significance level was set at P-value <0.05.

Result

The mean age of the participants in the study were 71.19 ± 8.41 years. The majority of participants (53.5%) were male (n =214), and 265 (66.3%) were married. In terms of educational level and occupation status, most of the participants (75%) were illiterate, and 176 (44%) were retired. Also, 76.5% of the elderly lived in the city. In terms of lifestyle, 64% of the elderly lived with their spouses, 54.5% had no physical activity, and 71.8% did not need assistance to perform their activities. Our results showed that 101 (25.3%) of the elderly had hypertension and the majority of the elderly (55.5%) had a modest perception of their health. The analysis of the relationship between study variables and the factors affecting the inability of the elderly showed a significant relationship between disability score and age, number of children, occupation, and lifestyle. Furthermore, physical activity, illness history, the perception of health, and the need for assistance in daily activities were among the factors affecting the elderly's disability (Table-1). The analysis of the components of the questionnaire shows that the most common problem among the elderly men was walking, with a mean score of 0.52 ± 1.08, and among the elderly women getting in and out of a car, with a mean score of 0.58 ± 1.60. Also, the mean of the total disability score was 2.69 ± 5.4 and 2.41 ± 5.6 in men and women, respectively. The total score of disability in the elderly was 2.56 (Table-2). According to the results in Table-3, 3.7% of men and 2.2% of women experienced severe and very severe disability. In addition, all the subjects experienced severe to very severe disability (3%), moderate to severe disability (11.5%) and mild to moderate disability (10.8%). The results of the elderly disability status in both genders have been presented in Table-3.

Discussion

Our study showed that older women are more likely to experience more disability than older men (28.2% vs. 24.2%); however, 3.7% of men and 2.2% of women had a severe to very severe disability, which is consistent with the findings of the study by Noei et al., and Khan et al. in India (12, 13). Also, according to the results of study by Hosseini et al., 18.3% of women and 8.9% of

Table 1. Demographic characteristics and their relationship with disability score

Variables		Mean ± SD	P-value	Variable		Mean ± SD	P-value
Age, y		8.41 ±7.19	0.001	Numbrt of children		2.37± 5.55	0.001
Variable		**N (%)**		Variable		N (%)	
Gender	Male	214(53.5)	0.11	Physical activity	Yes	182(45.5)	0.001
	Female	186(46.5)			No	218(54.5)	
Marital status	Married	265(66.3)	0.07	Economic status	Income equals to and expenditure	250(62.5)	
	Single	3(08)			Income is more than expenditure	25(6.3)	
	Widow	132(23)			Income is less than expenditure	125(31.3)	
Place of Residence	City	306(76.5)	0.16	Need for assistance	No	113(28.2)	0.001
	Village	94(23.5)			No	287(71.8)	
Educational Status	Illiterate	300(75)	0.13	Perception of health	Excellent	23(5.8)	0.001
	Guidance school	65(16.3)			Good	118(29.5)	
	Diploma	26(5)			Fairly good	222(55.5)	
	Academic	9(2.3)			Bad	33(8.3)	
Addiction Status	Cigarette	60(15)	0.41		very bad	4(1)	
	Medicine	38(9.5)		Illness history	Cardiovascular	67(16.8)	0.001
	Drugs	302(75.5)			Diabetes	22(5.5)	
Lifestyle	Single	28(7)	0.01		Muscular, skeletal	43(10.8)	
	With spouse	256(64)			Hypertension	101(25.3)	
	With children	96(24)			Others	56(14)	
	Others	20(5)			None	111(27.8)	
Occupation status	Retired	176)44)	0.001				
	Worker	6(1.5)					
	unemployed	49(12.3)					
	Others	169(42.3)					

men were suffering from disability; suggesting that older women suffer from high rate of disability compared to men, that is in line with the results of the current study (14). According to Veiga et al. study in Brazil, the rate of disability in women was higher than that of men, but the average score for disability was higher in men (15). This difference could be attributed to the fact that women have higher resistance to diseases and they are more predisposed to musculoskeletal disorders (16). Further analysis revealed that both men and women experienced the highest levels of disability in the area of getting in and out of the car and the lowest disability in turning faucets on and off. Consistent with the current findings, the results of the study by Hosseini et al. in Amirkola showed that the older people experienced a higher level of disability in the areas of bathing and less disability in eating (14). Similarly, in another study by Farhadi et al. in Kahrizak nursing home, the elderly reported the highest rate of disability in the areas of mobility, household, and family duties (17). The results

Table 2. Scores of the components of the questionnaire. Data are presented as mean±SD

Components of the questionnaire	Men (n=214)	Women (n=186)	Total (n=400)
Dressing	0.77 ± 0.23	0.76± 0.22	0.77 ± 0.23
Getting in and out of bed	0.93 ± 0.38	0.96± 0.27	0.94 ± 0.37
Lifting a full cup or glass to mouth	0.70 ± 0.19	0.44 ± 0.06	0.60± 0.13
Walking outdoors on flat ground	1.08 ± 0.52	1.05 ± 0.45	1.06± 0.49
Washing and drying entire body	8.47 ± 0.19	0.50 ± 0.24	0.48 ± 0.21
Bend down and pick up clothing from the floor	1.02 ± 0.50	0.96± 0.38	1.0± 0.45
Turning faucets on and off	0.63± 0.16	0.48 ± 0.9	0.56± 0.13
Getting in and out of a car	1.01 ± 0.49	1.60± 0.58	1.08 ± 0.53
Total	5.40 ± 2.69	5.06± 2.41	5.24 ± 2.56

Table 3. Disability status in the elderly based on gender. Data are presented as n (%)

Disability status	Men (n=214)	Women (n=186)	Total (n=400)
No disability	162 (75.70)	137 (73.7)	299 (74.8)
Mild to moderate	18 (8.40)	25 (13.4)	43 (10.8)
Moderate to severe	26 (12.1)	20 (10.8)	46 (11.5)
Severe to very severe	8 (3.7)	4 (2.2)	12 (3)

of a study in the country district of Ilam indicated that the older people experienced greater disability in walking and occupational activities and less disability in social activities and interaction with the people of the village (18). In an investigation into the retired elderly of municipality organization, Noei et al. found that the elderly people suffered from the highest levels of disability for social participation and the lowest level of disability was found in the domain of self-care and personal hygiene (12). This discrepancy can be due to the statistical population in terms of culture, place of residence, and the tools used in each of the studies. On the other hand, lack of knowledge regarding the use of medical rehabilitation and auxiliary equipment for daily activities in Khalkhal city can have a major impact on the elderly's disability and might be among the other causes of discrepancies in different studies. Besides, the application of training and programs for using diets enriched by calcium and Vitamin D in accordance with the cold mountainous region can also contribute to the reduction of skeletal diseases and, consequently, disability of the elderly. One of the findings of current research is a relationship between age and disability in the elderly suggesting that some disabilities in older people increase with age; this finding is in agreement with those findings of the studies by Vafaie et al., Shahbazi et al., Noei et al. and Hosseini et al. (12, 14, 19, 20). Noei et al. reported that the prevalence of disability increases 1.1 times more in older people with advancing age (12). In contrast, no significant statistical relationship was found between age and disability in the Brazilian elderly in the Veiga et al. study (15). Despite the high rate of disability of women in this study, there was no significant difference between both genders in terms of disability. However, the results of the studies by Noei et al., Hosseini et al., Adib-Hajbagheri et al., and Khongboon et al. indicated a significant association between gender and disability, and being female was described as an effective factor in the incidence of the disability (10, 12, 14, 21). Lifestyle, the perception of health, physical activity, and previous occupation are among the other factors affecting elderly disability in the present study.

Evidence revealed that musculoskeletal disorders and depression are one of the major factors of disabilities in the elderly (19). Noei et al. and Hosseini et al. reported that lifestyle was statistically correlated with disability in the elderly and a significant relationship was found between the disability and chronic diseases, which are in line with the results of the current research (12, 14). Furthermore, according to the findings of the current study, although the age was found to be a non-modifiable factor in the incidence of disability, the prevention and management of chronic diseases can significantly reduce the burden of disability of the elderly. It seems that targeted interventions in the field of physical activity and lifestyle in the elderly might also be modified. A limitation of this study was lack of access to all elderly people, including the elderly at home and elderly living in villages away from the city, who do not have access to elderly health services provided at health centers. Therefore, further research needs to focus on all the seniors living in city and village receiving care services at home, hospital and nursing home.

Conclusion

The findings of this study indicate that the rate of disability among the elderly is high in Khalkhal city. It was also found that older men suffer from a higher rate of disability compared to women. Chronic diseases are among the factors affecting the disability in the elderly so that the prevention and management of chronic diseases can significantly reduce the burden of disability of the elderly. Therefore, it is suggested that some modifications need to be done in the national health programs planned for the elderly.

Acknowledgment

This study was sponsored and supported by Khalkhal University of medical sciences (ethics code IR.KHALUMS.REC.1397.009). The researchers appreciate the assistance of the research chancellor, the staff of health centers, and all aged participants in this study.

Conflict of interest

The authors declare no competing interests.

References

1. Pourjafar MR, Taghvaee AA, Bemanian MR, Sadeghi AR, Ahmadi F. Effective environmental aspects of public spaces formation to achieve successful aging with emphasis on elderly preferences of Shiraz. Salmand Iran J Ageing. 2010; 50 (15):22-34. [Persian]
2. Harrefors C, Savenstedt S, Axelsson K. Elderly people's perceptions of how they want to be cared for: An interview study with healthy elderly couples in Northern Sweden. Scand J Caring Sci. 2009; 23(2):353- 60.
3. Dadkhah A. Aging services system in America and Japan and provide indicators to the strategic planning of aged care services. Salmand Iran J Ageing. 2007; 1(2):166-76.
4. Hafez G, Bagchi K, Mahaini R. Caring for the elderly: A report on the status of care for the elderly in the Eastern Mediterranean Region. East Mediterr Health J. 2000; 6(4):636-43.
5. Statistical Centre of Iran. Census of population and housing in 2016: Tehran: Presidency for I.R.I Vice-Presidency for Strategic Planning and Supervision; 2018 Jan 27. Available at: https://www.amar.org.ir/Portals/0/census/1395/results/chnsonvm-1395.pdf.
6. Mirzaei M, Shams Ghahfarokhi M. Demography of elder population in Iran over the period 1956 to 2006. Salmand Iran J Ageing. 2007; 2 (3):326-331.
7. Shirazikhah M, Mousavi M, Sahaf R, Sarmadi M. Consequence of changes in the elderly people population: Elderly women in Iran. Life Sci J. 2012; 9(4):869-877.
8. Tak E, Kuiper R, Chorus A, Hopman-Rock M. Prevention of onset and progression of basic ADL disability by physical activity in community dwelling older adults: A Meta-Analysis. Ageing Res Rev. 2013; 12(1):329-38.
9. Tagharrobi Z, Sharifi K, Sooky Z. Psychometric evaluation of shah version of modified barthel index in elderly people residing in Kashan golabchi nursing home. Feyz. 2011; 15(3):213-24. [Persian]
10. Adib-Hajbaghery M, Akbari H. The severity of old age disability and its related factors. Feyz. 2009; 13(3):225-34. [Persian]
11. Tagharrobi Z, Sharifi KH, Sooky Z. Psychometric evaluation of Stanford health assessment questionnaire 8-item disability index (HAQ 8-item DI) in elderly people. J Holist Nurs Midwifery. 2014; 24(1):9-20.
12. Noei H, Sahaf R, Akbari Kamrani A, Abolfathi Momtaz Y, Pourhadi S, Shati M. The relationship between gender and disability in the elderly people in Tehran municipality pension organization. Salmand Iran J Ageing. 2017; 12(1):6-17. [Persian]
13. Khan ZA, Singh C, Khan T. Correlates of physical disability in the elderly population of rural North India (Haryana). J Family Community Med. 2018; 25(3):199-204.
14. Hosseini SR, Moslehi A, Hamidian SM, Taghian SA. The relation between chronic diseases and disability in elderly of Amirkola. Salmand Iran J Ageing. 2014; 9(2):80-7. [Persian]
15. Veiga B, Pereira RA, Pereira AMV, Nickel R. Evaluation of functionality and disability of older elderly outpatients using the WHODAS 2.0. Rev Bras Geriatr Gerontol. 2016; 19(6):1015-21.

16. Wray LA, Blaum CS. Explaining the role of sex on disability: A population-based study. Gerontologist. 2001; 41(4):499–510.
17. Farhadi A, Foroughan M, Mohammadi F, Rassouli M, Sadegh Moghadam L, Nazari S. Caregiving appraisal in family caregivers of older adults. Salmand Iran J Ageing. 2016; 11(1):8-19. [Persian]
18. Mozafari M, Salimi E, Bastami MR, Azami M, Borji M. Disability status in the rural older adults in Ilam. J Gerontol. 2016; 1(1):48-54. [Persian]
19. Vafaei Z, Haghdoost A, Alizadeh M, Dortaj E. Prevalence of disability and relevant risk factors in elderly dwellers in Isfahan province-2012. Salmand Iran J Ageing. 2014; 8(4):32-40. [Persian]
20. Shahbazi MR, Mirkhani M, Hatamizadeh N, Rahgozar M. Disability assessments in Tehranian elderly. Salmand Iran J Ageing. 2008; 3(3 and 4):84-91. [Persian]
21. Khongboon P, Pongpanich S, Robert S. Risk factors for six types of disability among the older people in Thailand in 2002, 2007 and 2011. J Aging Res. 2016:1-13.